

# **USER'S MANUAL ARTIK P**



## ARTIK P

The adventurer

### WELCOME

We wish to welcome you to our team and thank you for the confidence that you have placed in a NIVIUK Glider.

We would like to share with you the commitment, the passion and emotions of the Niviuk design team, which have resulted in the creation of the new ARTIK P. Niviuk are very proud of this new glider, carefully designed to bring you maximum pleasure whilst allowing you learn and progress.

The legendary Artik design is now available in a lightweight version derived from and based on the best assets found in the previous models. For the XC, mountain or hike&fly pilots who want to explore new routes and need lightweight compact gear.

We are confident that you will enjoy flying this wing and that you will soon understand the meaning of our slogan: "The importance of small details"

This is the user's manual that we recommend you to read in detail.

The **NIVIUK** Team.

## USER'S MANUAL

### NIVIUK Gliders ARTIK P

This manual offers all the necessary information that will familiarize you with the main characteristics of your new paraglider. Although this manual informs you about your glider, it does not offer the instruction requirements necessary for you to be able to pilot this type of wing. Flying instruction can only be taught at a paragliding school recognized by the Flying Federation of your country.

Nevertheless we remind you that it is important that you carefully read all the contents of the manual for your new ARTIK P.

Severe injuries to the pilot can be the consequence of the misuse of this equipment.

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## SUMMARY

WELCOME	2	4.3 USING THE ACCELERATOR	11
USER'S MANUAL	2	4.4 FLYING WITHOUT BRAKE LINES	11
1. CHARACTERISTICS	4	4.5 KNOTS IN FLIGHT	11
1.1 WHO IS IT DESIGNED FOR?	4	5. LOSING ALTITUDE	11
1.2 CERTIFICATION	4	5.1 EARS	11
1.3 IN-FLIGHT BEHAVIOUR	4	5.2 4B2 TECHNIQUE	12
1.4 ASSEMBLY, MATERIALS	4	5.3 B-LINE STALL	12
1.5 ELEMENTS, COMPONENTS	6	5.4 SPIRAL DIVE	13
2. UNPACKING AND ASSEMBLY	6	5.5 SLOW DESCENT TECHNIQUE	13
2.1 CHOOSE THE RIGHT LOCATION	6	6. SPECIAL METHODS	13
2.2 PROCEDURE	6	6.1 TOWING	13
2.3 ASSEMBLY OF THE HARNESS	6	6.2 ACROBATIC FLIGHT	13
2.4 TYPE OF HARNESS	6	7. CARE AND MAINTENANCE	14
2.5 ASSEMBLY OF THE ACCELERATOR	7	7.1 MAINTENANCE	14
2.6 INSPECTION AND WING	7	7.2 STORAGE	14
INFLATION ON THE GROUND	7	7.3 CHECKS AND CONTROLS	14
2.7 ADJUSTING THE BRAKES	7	7.4 REPAIRS	14
3. THE FIRST FLIGHT	8	8. SAFETY AND RESPONSABILITY	14
3.1 CHOOSE THE RIGHT LOCATION	8	9. GUARANTEE	15
3.2 PREPARATION	8	10. TECHNICAL DATA	16
3.3 FLIGHT PLAN	8	10.1 TECHNICAL DATA	16
3.4 PRE-FLIGHT CHECK LIST	8	10.2 MATERIALS DESCRIPTION	17
3.5 WING INFLATION, CONTROL, AND TAKE-OFF	8	10.3 RISERS PLAN	18
3.6 LANDING	8	10.4 SUSPENSION PLAN	19
3.7 FOLDING INSTRUCTIONS	8	10.5 DIMENSIONS ARTIK P 21	20
4. IN FLIGHT	9	10.6 DIMENSIONS ARTIK P 23	20
4.1 FLYING IN TURBULENCE	9	10.7 DIMENSIONS ARTIK P 25	21
4.2 POSSIBLE CONFIGURATIONS	9	10.8 DIMENSIONS ARTIK P 27	21
		10.9 CERTIFICATION SPECIMEN TEST	22



## 1. CHARACTERISTICS

### 1.1 WHO IS IT DESIGNED FOR?

The ARTIK P was designed for cross country, mountain or hike&fly pilots who want to explore new routes and need lightweight compact gear.

### 1.2 CERTIFICATION

The ARTIK P has successfully passed the European EN/LTF certification. This test was carried out in the Swiss Air-Turquoise laboratories in Switzerland. All the commercially available sizes passed every required test with excellent results and the ARTIK P received the EN C / LTF C certifications for all sizes.

The ARTIK P passed the essential load test of 8G's without experiencing any problems.

We recommend paying special attention to the flight test report made by the certification laboratory. The flight test report indicates all necessary information to know and how the new paraglider will react during each tested manoeuvre.

It is important to take understand that each size can have a different reaction with the same manoeuvre, and each wing size can behave differently depending on its all up weight.

Check the certification results and figures on the last pages of this manual or [www.niviuk.com](http://www.niviuk.com)

### 1.3 IN-FLIGHT BEHAVIOR

With progressive, predictable and efficient handling the ARTIK P effectively reads the air mass rather easily, seeking out and coring thermals with efficiency and ease. It is an agile, light, predictable glider in

all flying conditions, and behaving impeccably well in turbulence.

### 1.4 ASSEMBLY, MATERIALS

The ARTIK P benefits from the latest technological advances used on other Niviuk gliders to enhance pilot comfort and improve the performance of the RAM, DRS, LI-NK light System and 3 line profile.

**RAM.-** The RAM AIR INTAKE technology presents an internal positioning for the air intakes, providing optimal and constant internal pressure as well as improving laminar air flow on the intrados. As a result, a significant turbulent air buffering takes place at the leading edge for better consistency across the speed range, and hence increasing performance with maximum safety.

**DRS.-** The trailing edge was reinforced with small ribs, flattening it and spreading the pressure out evenly for better air-flow and less parasitic drag on this important part of the glider. The addition of these ribs gives exceptional handling (increased efficient when turning), more control and precision.

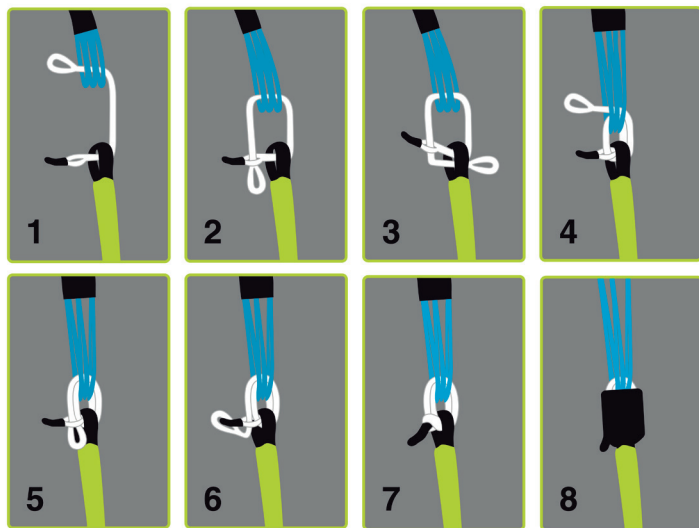
**3LT.-** Its powerful profile, a detailed internal architecture structure, and the use of high-tech strength materials make it possible to obtain a significant reduction of the combined suspension lines length, hence reducing the parasite drag amount and the weight of the glider to gain efficiency.

**LI-NK light System. –** The LI-NK is an ultralight system made to connect the lines to the risers, and specially designed for mountain and lightweight gliders. It has a higher load bearing braking point than the traditional delta maillons without the weight. (Breaking strength LI-NK light System: 1300 kg / Maillon: 800 kg).

The LI-NK light System is 25 times lighter and it is fitted with a locking system providing greater efficiency at maximum load. Dyneema braid

stitched together with a locking strap.

Notice: this system has not been proven or officially certified to connect the risers to the harness and/or the rescue parachute to the harness.



1. Push the lines through the elastic sleeve, then the LI-NK light System through the lines and the riser. The reinforced end with the black tab should be located on the riser side first.
2. Push the upper looped end through the loop with the reinforced end where the black tab is located.
3. Continue with the procedure in a counterclockwise motion by pushing the looped end through the riser.
4. Push the looped end through the lines again following the same pattern.

5. Push the looped end through the loop of the reinforced end (black tab) once more.
6. Push the reinforced end loop (black tab) through the looped end to secure them together.
7. Pull tight to secure the knot and connection.
8. Complete the operation by sliding the protective elastic sleeve over the entire assembly.

The line plan on the ARTIK 4 combines Dyneema Liros and Vectram Cousinun. Both of them are unsheathed lines, which are slightly more exposed to the normal rigours and wear of our sport.

It is strongly recommended for the lines to be thoroughly inspected by the pilot before each flight and ultimately checked by a specialized certified repair facility or Niviuk dealer after reaching one hundred (100) hours of flight. Keep in mind that we are dealing with high performance materials in need of systematic maintenance at regular intervals to keep them in top working conditions.

The fabrics used have been carefully selected for their lightweight, UV standards and resilient properties.

The entire process from Olivier's computer thorough design work to manufacturing and final assembly must be flawless and done on a zero tolerance basis. Precision in all phases of work is central to delivering a perfect product to the pilot. An automated computerized lazer cutting plotter enables the various fabric panels to be cut with ultimate precision. The software not only guides the lazer cutter but prints the registration marks needed for assembly. It also numbers each individual piece of material. Machines take care of the initial phase before human handling of the pieces begins, so to eliminate possible problematic errors that could occur during this delicate procedure.

The lines are semi-automatically manufactured and all the sewing is completed under the supervision of our specialists. The assembly

jigsaw puzzle is made easier as a result. We minimize the procedures while making quality control more efficient. All the various parts of the canopy are cut and assembled under the strict conditions induced by the automation of the whole process.

All NIVIUK Gliders go through an extremely thorough and efficient final inspection. Every single glider line is measured once the final assembly has been completed. Each wing is then individually inflated for the last visual inspection.

Each glider is packaged following the maintenance and conservation instructions recommended for the advanced materials. NIVIUK Gliders are made of high quality materials for durability and best performance delivery to meet today's market certification requirements.

Material manufacturing information can be found on the last pages of this manual.

## 1.5 ELEMENTS, COMPONENTS

The ARTIK P is delivered to its owner together with a series of components that, although not fundamental, do take an important part in the use, transport and storage of the paraglider:

- A rucksack.
- A small fabric repair kit with self-adhesive ripstop nylon (matching the wing's color scheme) and replacement maillon blockers.

## 2. UNPACKING AND ASSEMBLY

### 2.1 CHOOSE THE RIGHT LOCATION

We recommend unpacking and packing your wing on a school slope or a flat clear area, obstacle free and in low wind speed. Doing so will enable

you to carry out all the recommended steps required to check and inflate the ARTIK P.

We recommend having professional supervision to conduct the entire procedure, and have it done as it should be.

### 2.2 PROCEDURE

Take the paraglider out of the rucksack, open it and spread it open with the lines on top of the intrados. Position the wing as if you were to inflate it.

Check the condition of the fabric and the lines, making sure there are no abnormalities. Check for the maillons attaching the lines to the risers to be fully closed and locked. Identify and if necessary disentangle the lines from the A, B and C risers, the brake lines and the corresponding risers. The lines must be free of entanglements and/or knots.

### 2.3 ASSEMBLY OF THE HARNESS

Correctly connect the risers to the harness karabiners. The risers and lines can not have any twists and must be in the right order. Check for the harness buckles to be securely locked.

### 2.4 TYPE OF HARNESS

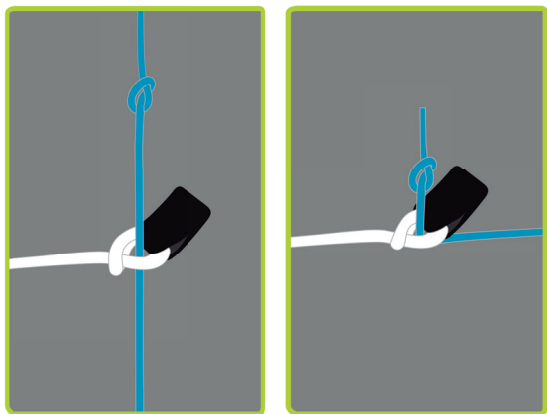
The ARTIK P can be flown with most of the harnesses found on the market today, including cocoon type models. We strongly recommend adjusting the chest strap distance according to the values used during the certification procedure. That distance will vary depending on the chosen harness model.

Incorrect adjustment can seriously affect the glider's flying behavior. Too wide a distance between the carabiners, may provide more feedback but could affect the overall stability of the glider. Too narrow a distance between the carabiners, would provide less feedback but also increase

the risk of developing a twist in during a large collapse. Any chest strap adjustment other than the default certification setting would affect and alter the glider's behavior.

## 2.5 ASSEMBLY OF THE ACCELERATOR

The acceleration mechanism of the ARTIK P is activated by pushing with your feet on the accelerator bar supplied with the wing. The speed-bar must be properly installed and connected to the glider before your first flight.



The speed-bar and riser connections to the speed-bar lines are made by nonslipping bowline knots. This configuration guaranties the same level of safety found when using metal crimped hooks while reducing the overall weight of the accelerator setup.

After installation, take into account that you will have to adjust the length of the accelerator lines for correct use. That distance will vary according to the length of the pilot's legs!

It is recommended to first check the speed system compatibility with the rest of the equipment. Most paragliding schools will carry this type of gear.

## 2.6 INSPECTION AND WING INFLATION ON THE GROUND

Once your gear has been checked and made sure that the weather conditions are favorable, inflate your ARTIK P as many times as necessary to become familiar with its behavior.

The ARTIK P inflates easily and smoothly. An over energetic inflation is not necessary to bring the wing overhead as it will climb gently with minimum pressure on the harness when moving forward.

The inflation sequence can be made easier by using the A risers. Do not pull on them; just accompany the natural rising arcing movement of the wing. Once the wing has climbed overhead, simply apply the correct amount of brake pressure to keep the ARTIK P above you.

## 2.7 ADJUSTING THE BRAKES

The length of the main brake lines is adjusted at the factory to the length established during certification. However, the length can be changed to adapt to the pilot's own flying style. In any case, we recommend flying for a while using the default line factory settings before making any adjustment to them. It will enable you to become more familiar with the ARTIK P and its unique flying characteristics.

If you then decide to change the length of the brake lines, untie the knot, slide the line through the brake link to the desired length, and strongly re-tie the knot. Qualified personnel should carry out this adjustment. You must ensure that this adjustment does not slow the glider down without pilot input. Both brake lines should be symmetrical and measure

the same length. The most recommended knots are the clove hitch or bowline knot.

When changing the brakes length, it is necessary to check that they do not act when the accelerator is used. When accelerated, the glider rotates over the C risers, the trailing edge rises. The brake lines should be checked for proper adjustment, while taking this extra length into consideration.

### 3. THE FIRST FLIGHT

#### 3.1 CHOOSE THE RIGHT LOCATION

We recommend taking your first flight with your ARTIK P on a smooth slope (a school training hill) or at your usual flying area.

#### 3.2 PREPARATION

Repeat the procedures detailed in chapter 2 UNPACKING AND ASSEMBLY in order to prepare your equipment.

#### 3.3 FLIGHT PLAN

Make a flight plan before taking off to avoid possible flight problems later.

#### 3.4 PRE-FLIGHT CHECK LIST

Once ready, and before taking off, make a last visual equipment inspection to ensure that all is in order and good to go. Make sure the weather conditions are suited for your flying skills.

#### 3.5 WING INFLATION, CONTROL, AND TAKE-OFF

Smoothly and progressively inflate the wing (chapter 2.6 INSPECTION

AND WING INFLATION ON THE GROUND). The ARTIK P inflates easily and does not require excessive energy. No tendencies to overshoot, rendering the inflation sequence quite easy to achieve. Those characteristics enable the pilot to be in full control and give him/her enough time to decide whether or not to transit into the running phase toward a successful takeoff.

Whenever the wind speed allows it, we recommend to do a reversed inflation. This technique enables the pilot to have a better view of the wing to make sure all is the way it should be before turning around and running down the slope. The ARTIK P is especially easy to control in this configuration and higher wind speeds. However, wind speeds up to 25 to 30 km/h are considered strong and extra consideration should be given on whether or not to takeoff.

Pay particular attention to the wing layout on the ground. Choose an appropriate location for best wind direction. Display the paraglider symmetrically in a crescent-like shape facing upwind for a trouble free inflation before running and taking off.

#### 3.6 LANDING

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### 3.7 FOLDING INSTRUCTIONS

The ARTIK P has a complex leading and trailing edge, designed using a variety of different materials. For that reason, the use of a correct folding method is very important for extending the useful life of your paraglider. It should be folded in an accordion shape; with the leading edge reinforcements flat positioned one atop the other. This method will keep the profile in good shape without altering its form or performance.

The wing should then be folded in three parts. It does not need to be tightly folded; doing so may damage the material and/or the lines.

The N-Kare bag is an easy to use folding bag designed to assist you during the packing process. It can also be used as a surface base to protect the glider against damage. More information at:

<http://www.niviuk.com/accessories.asp?id=JNKQKNP4>

## 4. IN FLIGHT

### 4.1 FLYING IN TURBULENCE

The ARTIK P has an excellent profile design made to withstand various weather conditions, hence enabling the pilot to take advantage of its stability for greater piloting efficiency. It reacts admirably in passive flight mode, thus offering a high level of safety in turbulent conditions. Nonetheless, the pilot always has steer the wing and adapt his/her technique to the prevailing weather conditions as he/she is the ultimate safety factor.

We recommend active piloting, the timely necessary fine adjustments to keep the wing in control. The pilot should stop braking to regain the necessary air speed after a correction is made.

Do not maintain any correction using the toggles for longer than necessary or it would cause the wing to enter a dangerous flying configuration. Make prompt, precis yaw, pitch and roll adjustments when needed to re-establish normal air speed.

### 4.2 POSSIBLE CONFIGURATIONS

To become familiar with those maneuvers, we recommend you to train under the supervision of a professional instructor within a school environment.

#### **Asymmetrical collapse**

In spite of the ARTIK P's profile stability, strong turbulent air may cause the wing to collapse asymmetrically if the pilot was unable to predict the glider's reactions in specific circumstances. When the wing is about to experience an asymmetric collapse the brake lines will transmit a loss of pressure to then be transferred to the pilot via the harness. To prevent the collapse from happening, pull the toggle corresponding to the compromised side of the wing. It will increase the incidence of the wing (angle of attack). If the collapse does happen the ARTIK P will not react violently, the turning tendency is gradual and easily controlled. Weight-shift toward the flying and opposite side of the collapse to keep the wing on flying straight while applying a light brake pressure to that side if necessary to slow it down. The collapsed side of the wing should then recover and reopen by itself. If it does not, then pull the brake line toggle of the collapsed side decisively and quickly all the way down before bringing it back up immediately. You may have to repeat this pumping action to provoke the re-opening of the deflated glider side. Do not over-brake and slow down the flying side of the wing (risk of a stall for having too high an angle of attack). Once the collapsed side reopens, recenter your body under the wing to regain the default flying speed.

### **Symmetrical collapse**

In normal flying conditions and due to the ARTIK P's design, asymmetrical collapses are unlikely to happen. The wing's profile has great buffering abilities to deal with extreme incidence changes. A symmetrical collapse may occur in strong turbulent conditions, entering or exiting powerful thermals or when lacking experience using the accelerator/speed-bar with untimely inadequate input. Symmetrical collapses usually re-inflate without the glider turning, but a symmetrically applied quick braking action with a quick deep pump will accelerate the re-inflation if necessary. Release the brake lines immediately to return to default glider air speed.

### **Negative spin**

A negative spin does not conform to the ARTIK P's normal flight behavior. Certain circumstances however, may provoke this configuration such as trying to turn when flying at very low air speed deep in the brakes, and applying even more toggle pressure on one side). It is not easy to give any specific recommendation about this situation other than quickly restoring the wing's default air speed and angle of attack by progressively reducing the tension on the brake lines. The normal wing reaction will be to have a lateral surge on the re-accelerated side with a rotation not greater than 360° before returning to default air speed and a straight flight path trajectory.

### **Parachutal stall**

A parachutal stall takes place when the wing remains fully inflated but loses forward motion to then drop vertically at an accelerated rate. Instability and a lack of pressure on the brake lines sets in, although the canopy would appear to be correctly inflated. To regain normal air speed, release brake line tension symmetrically and push forward on the "A" lines or weight-shift your body to any side WITHOUT PULLING ON THE BRAKE LINES.

### **Deep stall**

The possibility of the ARTIK P falling into this configuration during normal flight is very unlikely. This could happen if you are flying at a very low

speed, whilst oversteering during a number of maneuvers and in turbulent conditions. The wing will enter a deep stall when reaching a point below minimum air speed by symmetrically pulling the brake lines. It is done by pulling the toggles all the way down and holding them in place. The glider will initially deflate and dive behind the pilot. Gravity will takeover with the pilot free falling for a second until the glider reposition itself overhead while rocking slightly, depending on how the maneuver was executed. When purposely initiating a stall, be positive and do not second guess the outcome for an instant. Do not release the brake lines when half way into the maneuver or it would cause the glider to violently surge forward with great energy in front of and passed the pilot. It is very important to apply a symmetrical strong brake pull to limit the surge and bring the wing back up. Lessen the brake tension as the glider rises to the overhead default flying angle of attack.

If a symmetrical stall takes place, briefly and evenly pull the brake lines even if the wing is still ahead of you.

### **Wing tangle**

A wing tangle may happen after an asymmetrical collapse, the end of the wing is trapped between the lines ( known as a Cravat ). This situation could rapidly cause the wing to spin on itself depending on the nature of the tangle. The corrective maneuvers to use are the same as those applied in the case of an asymmetrical collapse: control the turn/spin by applying tension on the opposite brake and counterweight shift opposite to the turn. Then locate the line that reaches the stabiliser that is trapped between the other lines. This line has a different colour and belongs to the outer lines of the "C" riser for sizes 23 and 25 and "B" riser for sizes 21 and 27.

Pull on this line until it is tense as it should help undo the wing tangle. If ineffective, fly down to the nearest possible landing spot, control the trajectory with both counterweight shifting and use of the brake opposite to the tangled side. Be cautious when attempting to undo a tangle while flying near a mountainside or other paragliders; a loss of control of the

intended flight path might become jeopardized and a subsequent collision could happen as result.

### **Over handling**

Most flying problems are caused by wrong pilot input, to then degenerate into a cascade of unwanted and unpredicted series incidents. The ARTIK P was designed to recover by itself in most cases. Do not try to over correct it!

Generally speaking, the wing's reactions will be proportional to the type, amount and duration of input sent by the pilot to the wing. Bringing the glider back to a normal flight configuration as soon as possible is the priority.

### **4.3 USING THE ACCELERATOR**

The profile of the ARTIK P was designed to fly stably throughout its entire speed range. It is useful to accelerate when flying in strong winds or in extreme descending air. When accelerating the wing, the profile becomes more sensitive to turbulence and closer to a possible frontal collapse. If a loss in internal wing pressure is felt, tension on the accelerator should be reduced to a minimum and a slight pull on the brake lines is recommended to increase the wing's incidence angle. Remember to re-establish the flight speed after correcting the incidence.

It is NOT recommended to accelerate near to the mountainside or in very turbulent conditions. If necessary you will have to constantly adjust the movements and pressure on the accelerator whilst constantly adjusting the pressure applied to the brake lines. This balance is considered to be "active piloting."

The ARTIK P risers were designed without any adjustable, removable or variable device to prevent an incorrect use of the accelerator system.

### **4.4 FLYING WITHOUT BRAKE LINES**

If, for any reason at all, the ARTIK P's brake lines become disabled in flight, piloting the wing with the "C" risers and weight shifting will become necessary. The C-lines steer easily because they are not under much tension, however you will need to be careful and not handle them too heavily to cause a stall or negative turn. The wing must be flown at full speed during the landing approach, and the "C" risers will have to be pulled symmetrically all the way down shortly before contact with the ground. This braking method is not as effective as using the brake lines, and hence will land with a higher ground speed.

### **4.5 KNOTS IN FLIGHT**

The best way to avoid these knots and tangles is to thoroughly inspect the lines as part of a systematic Pre-flight Check. If a knot is spotted during the running phase, immediately abort the running phase and stop.

If inadvertently taking off with a knotted line, the glider drift will need to be compensated by weight-shifting to the opposite side of the wing and apply a slight brake pull to that side. Gently pulling the toggle line to see if the knot can be undone or try to locate the line with the knot. Try pulling the identified line to see if the knot can be undone. Beware of trying to clear a knotted line or untangle a line in flight. Do not pull too hard on the toggles for there will be an increased risk of stalling the wing or enter a negative turn.

Before trying to remove a knot, make sure there are no pilots flying nearby, and never try these attempts close to the mountainside. If the knot is too tight and cannot be removed, carefully and safely fly to the nearest landing zone.

## 5. LOSING ALTITUDE

Knowledge of different descent techniques is important and could be extremely useful to have. The most adequate descent method will vary depending on any particular situation.

We recommend learning these maneuvers within a competent school environment.

### 5.1 EARS

Big ears is a moderate descent technique, achieving about  $-3$  to  $-4$  m/s and a ground speed reduction between 3 and 5 km/h. Effective piloting then becomes limited once the maneuver has been activated. The angle of incidence and wing loading also increases. Push on the accelerator/speed-bar to restore the wing's initial air speed and the angle of attack. To enter a "Big Ears" configuration, simultaneously pull on "4A2" lines and simultaneously, smoothly pull them outward and downward. The wingtips will fold in. Let go of the lines to reopen the wing tips to a default configuration. If they do not re-inflate, gently pull on one of the brake lines and then on the opposite one. We recommend inflating the wing tips asymmetrically, not to alter the angle of incidence, especially if you are flying near the ground or flying in turbulence.

### 5.2 4B2 TECHNIQUE

On the new glider generation, using "Big Ears" can create a high degree of parasitic turbulence which can create a significant loss of airspeed. When "Big Ears" are applied to high aspect ratio wings the wing tips tend to "flap" which also adds to the amount of unwanted turbulence.

This new rapid descent technique was first discovered by our Niviuk team Pilots in 2009 while flying a competition prototype wings, which because of its line plan and high aspect ratio would not allow "Big Ears" to be applied. In fact, on 2 line wing profiles it has been often proven difficult to achieve.

For all these reasons, we advise the use of the 4B2 line descent technique. This technique ensures a rapid descent while maintaining forward air speed, and thus, eliminating the risk of a potential stall. WHAT TO DO?

Locate the 4B2 lines on your risers and pull downward to initiate the "Big Ears" configuration until both wingtips drop back slightly. The glider's air speed will diminish slightly, quickly stabilize and then increase. The wing will reach a descent rate of about 5-6m/s. Controlled turning of the wing can easily be maintained by body weight shifting in the harness, and exact same way you would with "Big Ears". We recommend the application of the accelerator/speed-bar whilst using this technique. To exit the maneuver release the lines as you would with "Big Ears". Control the pitch and the wing will quickly adopt a normal flight configuration. This new technique enables the pilot to have a comfortable and controllable rapid descent without the risk of experiencing a "Cravat" or "Deep stall".

We advise you to first try this technique in smooth conditions with sufficient AGL (Altitude above Ground Level).

### 5.3 B-LINE STALL

When carrying out this manoeuvre, the wing stops flying, loses all horizontal speed and the pilot is no longer in control of the paraglider. The airflow over the profile is interrupted and the wing enters a situation similar to parachuting.

To enter this maneuver, the B-risers are handled below the maillons and symmetrically pulled down together (approx. 20-30 cms) and then held to this position. The initial phase is quite physical (high pull resistance) requiring a strong tug until the wing's profile/cord deforms in an accordion-like shape. The initial pulling force will then be significantly lessened. Holding the B lines in the pulled down position will be necessary to maintain the configuration. The wing will then deform, its

horizontal speed will drop to 0 km/h, and vertical descending speed increase to -6 to -8 m/s depending on the weather conditions and how the manoeuvre was performed.

To exit the maneuver, simultaneously release both risers. The wing will then slightly surge forward and automatically return to normal flight. It is better to let go of the lines quickly rather than slowly. This is an easy escape maneuver to do but remember that the wing will stop flying, will lose all forward horizontal speed, and its reactions will change quite a bit when compared to a normal flight configuration.

#### 5.4 SPIRAL DIVE

This is a more effective way for rapidly lose altitude. Beware that the wing will experience and be subjected to a tremendous amount of descending and rotating speed (G force), which can cause a loss of orientation and consciousness (blackout). This maneuver must therefore be done gradually to increase one's capacity to resist the G force exerted on the body. With practice, a pilot will fully appreciate and understand it. Only practice at high altitude and with enough clearance.

To enter the maneuver, the pilot will need to synchronize a weight-shift with a gradual toggle pull toward the inside of the intended turn. The intensity of the rotation can be controlled by applying a slight brake line pull with the toggle located on the upper and opposite half side of the wing.

A paraglider flying at its maximum rotating speed can reach -20 m/s, equivalent 70 km/h vertical descending speed, and a stabilized spiral dive will reach from 15 m/s onwards.

These are the reasons why any pilot should become familiar with the maneuver and know how to properly exit it.

To exit this maneuver, the inner toggle (down side of the turn ) must progressively be relaxed while momentarily applying tension to the

outer toggle opposite to the turn. The pilot's bodyweight must also lean towards the outside and opposite side of the turn at the same time. This exit needs to be carried out gradually and smoothly so to feel the "G-force" and speed changes taking place.

When exiting the spiral, the glider will briefly experience an asymmetrical acceleration and dive, depending on how the maneuver was carried out. Practice these movements at sufficient altitude and with moderation.

#### 5.5 SLOW DESCENT TECHNIQUE

Glide normally when using this technique without straining the wing or pilot, searching for descending (catabatic) air to use turn as if in a thermal. Beware of danger zones and locate a suited LZ (Landing Zone) while descending. Safety comes first!

### 6. SPECIAL METHODS

#### 6.1 TOWING

The ARTIK P does not experience any problem whilst being towed. Only qualified personnel should handle the qualified equipment to carry out this operation. The wing has to be inflated in the same way done with a normal takeoff mountain or ridge flight.

#### 6.2 ACROBATIC FLIGHT

Although the ARTIK P has been tested by expert acrobatic pilots in extreme situations, it WAS NOT designed for acrobatic flying . We DO NOT RECOMMEND USING THIS GLIDER for aerobatic flying !!!

We consider acrobatic flights to be any form of piloting different than standard soaring flights. Learning acrobatic maneuvers should be conducted under the supervision of qualified instructors within a school

environment and over water with all safety/rescue elements in place. Forces as high as 4 to 5 G can be exerted on a paragliding wings during extreme maneuvers.

Materials will wear more quickly than in normal flight. Gliders subjected to extreme maneuver techniques should be inspected every six months.

## 7. CARE AND MAINTENANCE

### 7.1 MAINTENANCE

Careful maintenance of your equipment will ensure continued performance.

The fabric and the lines do not need to be washed, if they become dirty, clean them with a soft damp cloth.

If your wing is wet from contact with salt water, immerse it in fresh water and dry it away from direct sunlight. Direct sunlight may damage the wing's materials and cause premature aging. After landing, do not leave the wing in the sun. Pack it properly and stow it away in its backpack.

If flying in a sandy environment, try to prevent the sand from entering through the cell openings. If sand is inside the wing, remove it before packing the wing away.

### 7.2 STORAGE

It is important for the wing to be correctly folded when stored. Keep it in the in a cool, dry place away from solvents, fuels, oils. Do not leave the gear inside a car trunk, as temperatures can climb up to 60°C and damage it. Weight should not be laid atop the equipment.

If the flying gear is stored with organic material, such as leaves , grass or insects trapped inside the cells, the chemical reaction can cause

irreparable damage. Empty the caissons before packing the glider away.

### 7.3 CHECKS AND CONTROLS

The ARTIK P should periodically be serviced and inspected (every 100 hours of use or every 24 months or whichever comes first), at the nearest professional repair shop. It will keep the glider in top condition and the product's warranty plus certification status valid.

Always conduct a thorough pre-flight check before each takeoff.

In spite of providing much more benefits to the pilots, unheated lines need more care and calibration control than their counterparts. Each minute line calibration variation has a directly effect on the performance of the wing. The ARTIK P mechanical and UV resistance are one of the highest on the market today for this type of line.

We recommend checking the lines calibration after the first 30 hours +/- of flight. This examination must be done separately from the regular 100 hours check or every two years (whichever happens first).

Why is it necessary?

By following the recommended controls at regular intervals, the glider will keep its original features for longer period of time. The location where the glider is flown, the climate area, temperature, humidity, wing load ...all have various and different degrees of impact on the integrity of the wing. They are the reasons why the calibration includes takes these factors in consideration. Only qualified personnel should complete the inspection and repairs if necessary it. It is important not to modify your wing's suspension lines based on someone else's line settings, as your glider may not need adjustments.

### 7.4 REPAIRS

If the wing is damaged, you can temporarily repair it by using the rip stop

found in the repair kit, for as long as no stitches are involved in the tear. Any other type of tear must be repaired in a specialized repair shop or by qualified personnel. Do not accept a home repair.

## 8. SAFETY AND RESPONSIBILITY

It is well known that paragliding is considered a high-risk sport, where safety depends on the person who is practicing it.

Wrong use of this equipment may cause severe injuries to the pilot, or even death. Manufacturers and dealers cannot be rendered responsible for your decisions or any act or accident that may result out of participating in this sport.

You must not use this equipment if you have not been properly trained to use it. Do not take advice or accept any informal training from anyone who is not properly qualified as a flight instructor.

## 9. GUARANTEE

The equipment and components are covered by a 2-year guarantee against any manufacturing defect. The guarantee does not cover misuse of the equipment.

## 10. TECHNICAL DATA

### 10.1 TECHNICAL DATA

ARTIK P			21	23	25	27
CELLS	NUMBER		63	63	63	63
	CLOSED		10	10	10	10
	BOX		23	23	23	23
FLAT	AREA	M²	21	23	24,5	26,5
	SPAN	M	11,32	11,85	12,23	12,71
	ASPECT RATIO		6,1	6,1	6,1	6,1
PROJECTED	AREA	M²	17,8	19,5	20,77	22,46
	SPAN	M	9,01	9,43	9,73	10,12
	ASPECT RATIO		4,6	4,6	4,6	4,6
FLATTENING		%	15	15	15	15
CORD	MAXIMUM	M	2,28	2,4	2,47	2,56
	MINIMUM	M	0,53	0,55	0,57	0,59
	AVERAGE	M	1,85	1,94	2	2,08
LINES	TOTAL METERS	M	226	237	245	255
	HEIGHT	M	6,9	7,22	7,46	7,75
	NUMBER		226	226	226	226
	MAIN		2/3/2/	1/1/2/3	1/1/2/3	2/3/2/
RISERS	NUMBER	3/4	A/B/C	A/A'/B/C	A/A'/B/C	A/B/C
	TRIMS		NO	NO	NO	NO
	ACCELERATOR	M/M	105	150	150	150
TOTAL WEIGHT	MINIMUM	KG	60	60	75	90
IN FLIGHT	MAXIMUM	KG	73	80	95	110
GLIDER WEIGHT		KG	3,2	3,8	4,1	4,5
CERTIFICATION		EN/LTF	C	C	C	C

## 10.2 MATERIALS DESCRIPTION

CANOPY	FABRIC CODE	SUPPLIER
UPPER SURFACE FOR LEADING EDGE	9017 E25	PORCHER IND (FRANCE)
UPPER SURFACE FOR THE REST	70000 E3H	PORCHER IND (FRANCE)
BOTTOM SURFACE	70000 E3H	PORCHER IND (FRANCE)
RIBS	70000 E91	PORCHER IND (FRANCE)
DIAGONALS	70000 E91	PORCHER IND (FRANCE)
LOOPS	LKI - 10	KOLON IND. (KOREA)
REINFORCEMENT LOOPS	SOFT DACRON	D-P (GERMANY)
TRAILING EDGE REINFORCEMENT	DACRON	D-P (GERMANY)
REINFORCEMENT RIBS	LTN-0.8 STICK	SPORTWARE CO. (CHINA)
THREAD	SERAFIL 60	AMAN (GERMANY)

SUSPENSION LINES	FABRIC CODE	SUPPLIER
UPPER CASCADES	DC - 40	LIROS GMHB (GERMANY)
UPPER CASCADES	DC - 60	LIROS GMHB (GERMANY)
UPPER CASCADES	DC - 100	LIROS GMHB (GERMANY)
UPPER CASCADES	12100-50	COUSIN (FRANCE)
MIDDLE CASCADES	DC - 40	LIROS GMHB (GERMANY)
MIDDLE CASCADES	DC - 60	LIROS GMHB (GERMANY)
MIDDLE CASCADES	DC - 100	LIROS GMHB (GERMANY)
MIDDLE CASCADES	12240-115	COUSIN (FRANCE)
MIDDLE CASCADES	12470-200	COUSIN (FRANCE)
MIDDLE CASCADES	16140-70	COUSIN (FRANCE)

MIDDLE CASCADES	16330-145	COUSIN (FRANCE)
MIDDLE CASCADES	12100-50	COUSIN (FRANCE)
MIDDLE CASCADES	12240-115	COUSIN (FRANCE)
MAIN	16560-240	COUSIN (FRANCE)
MAIN	12470-200	COUSIN (FRANCE)
MAIN	16140-70	COUSIN (FRANCE)
MAIN	12950-405	COUSIN (FRANCE)
MAIN BREAK	TNL-280	TEIJIM LIMITED (JAPAN)
THREAD	SERAFIL 60	AMAN (GERMANY)

RISERS	FABRIC CODE	SUPPLIER
MATERIAL	10148	LIROS GMHB (GERMANY)
COLOR INDICATOR	PAD	TECNI SANGLES (FRANCE)
THREAD	V138	COATS (ENGLAND)
PULLEYS	RF25109	RONSTAN (AUSTRALIA)

10.3 RISERS PLAN

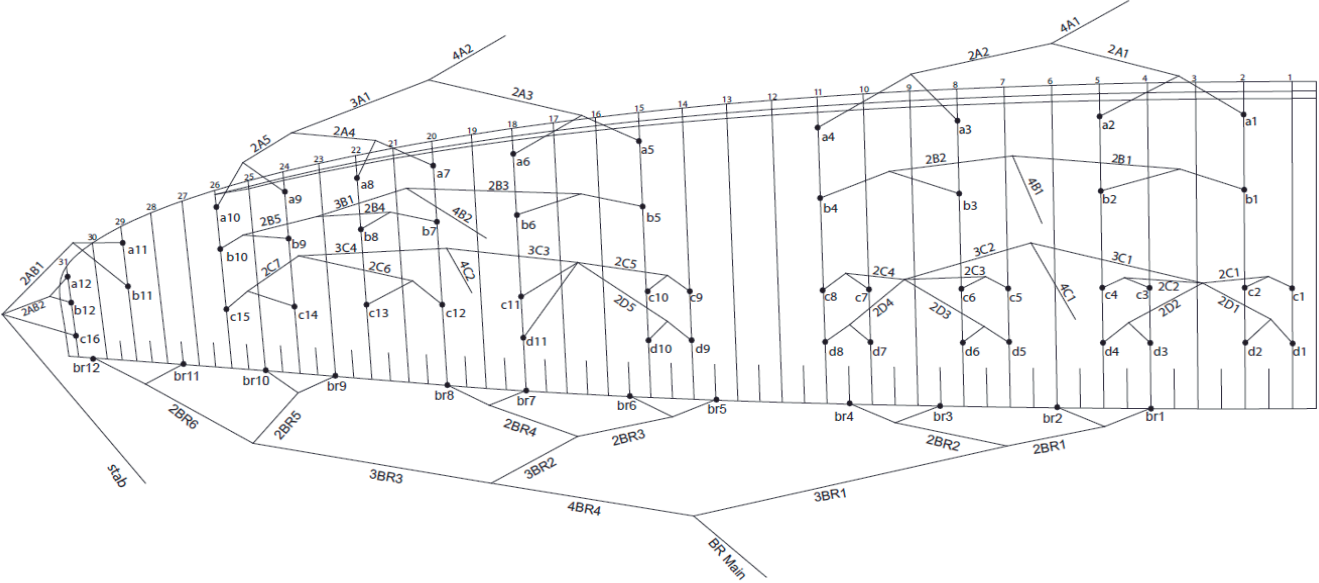
SIZE 21-27



Size 23-25



10.4 SUSPENSION PLAN



10.5 DIMENSIONS ARTIK P 21

LINES HEIGHT m/m					
	A	B	C	D	br
1	6463	6374	6545	6630	7132
2	6327	6240	6446	6539	6857
3	6290	6205	6322	6425	6647
4	6285	6205	6306	6403	6647
5	6229	6151	6265	6361	6544
6	6078	6010	6251	6350	6414
7	6034	5974	6297	6389	6345
8	5967	5915	6343	6426	6385
9	5945	5896	6224	6300	6335
10	5959	5930	6151	6229	6306
11	5657	5622	6056	6135	6325
12	5526	5518	6044		6401
13			6004		
14			6025		
15			6107		
16			5570		
RISERS LENGHT m/m					
	A	B	C		
	470	470	470		STANDARD
	344	374	470		ACCELERATED
	126	96	0		TRAVEL

10.6 DIMENSIONS ARTIK P 23

LINES HEIGHT m/m					
	A	B	C	D	br
1	6786	6693	6882	6973	7482
2	6645	6554	6780	6879	7195
3	6608	6520	6650	6760	6976
4	6605	6521	6629	6737	6977
5	6548	6466	6587	6690	6870
6	6390	6320	6573	6678	6735
7	6345	6282	6622	6720	6663
8	6275	6220	6670	6759	6706
9	6252	6201	6548	6639	6655
10	6267	6236	6472	6565	6624
11	5950	5913	6373	6456	6645
12	5813	5805	6360		6757
13			6318		
14			6340		
15			6425		
16			5858		
RISERS LENGHT m/m					
	A	A'	B	C	
	470	470	470	470	STANDARD
	312	332	352	470	ACCELERATED
	158	138	118	0	TRAVEL

10.7 DIMENSIONS ARTIK P 25

LINES HEIGHT m/m					
	A	B	C	D	br
1	7020	6923	7119	7219	7739
2	6875	6781	7013	7122	7443
3	6838	6747	6880	7000	7217
4	6836	6749	6858	6977	7218
5	6778	6694	6816	6928	7110
6	6616	6543	6802	6916	6970
7	6570	6505	6853	6960	6896
8	6497	6441	6903	7001	6941
9	6474	6421	6779	6868	6889
10	6489	6458	6700	6791	6857
11	6161	6123	6599	6680	6880
12	6020	6012	6584		6981
13			6541		
14			6563		
15			6652		
16			6067		
RISERS LENGHT m/m					
	A	A'	B	C	
	470	470	470	470	STANDARD
	312	332	357	470	ACCELERATED
	158	138	113	0	TRAVEL


10.8 DIMENSIONS ARTIK P 27

LINES HEIGHT m/m					
	A	B	C	D	br
1	7330	7230	7433	7539	8089
2	7181	7083	7323	7438	7781
3	7144	7049	7186	7312	7547
4	7143	7053	7163	7288	7549
5	7084	7002	7120	7234	7437
6	6916	6846	7106	7221	7293
7	6868	6801	7160	7267	7216
8	6793	6735	7212	7310	7263
9	6769	6715	7086	7180	7210
10	6786	6753	7004	7100	7178
11	6444	6404	6898	6984	7201
12	6296	6288	6883		7324
13			6838		
14			6861		
15			6953		
16			6340		
RISERS LENGHT m/m					
	A	B	C		
	470	470	470		STANDARD
	312	352	470		ACCELERATED
	158	118	0		TRAVEL

10.9 CERTIFICATION SPECIMEN TEST


ARTIK P 21

para-test.com



paragliding by air turquoise

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Class: **C**

In accordance with EN standards 926-2:2013 & 926-1:2006: **PG\_0927.2015**

Date of issue (DMY): **17. 04. 2015**

Manufacturer: **Niviuk Gliders / Air Games S.L.**

Model: **Artik P 21**

Serial number:

Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	73	Range of speed system (cm)	10.5
Minimum weight in flight (kg)	60	Speed range using brakes (km/h)	15
Glider's weight (kg)	3.2	Range of trimmers (cm)	0
Number of risers	3	Total speed range with accessories (km/h)	29
Projected area (m2)	17.8		


Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Flugsau	Warning! Before use refer to user's manual	
Harness model	XX-Lite	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	40		
Distance between risers (cm)	40		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

A A B C A A A A A A B A A A C A A A A A B B A 0


ARTIK P 23

para-test.com



paragliding by air turquoise

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Class: **C**

In accordance with EN standards 926-2:2013 & 926-1:2006: **PG\_0928.2015**

Date of issue (DMY): **17. 04. 2015**

Manufacturer: **Niviuk Gliders / Air Games S.L.**

Model: **Artik P 23**

Serial number:

Configuration during flight tests


Paraglider		Accessories	
Maximum weight in flight (kg)	80	Range of speed system (cm)	14.5
Minimum weight in flight (kg)	60	Speed range using brakes (km/h)	15
Glider's weight (kg)	3.8	Range of trimmers (cm)	0
Number of risers	3	Total speed range with accessories (km/h)	31
Projected area (m2)	19.5		

Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Supair	Warning! Before use refer to user's manual	
Harness model	Altiplume S	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	44		
Distance between risers (cm)	44		


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

A A A C A A A A A A B A A A C A A A A A B A 0

## ARTIK P 25

para-test.com


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Class: **C**  
In accordance with EN standards 926-2:2013 & 926-1:2006: **PG\_0929.2015**  
Date of issue (DMY): **17. 04. 2015**  
Manufacturer: **Niviuk Gliders / Air Games S.L.**  
Model: **Artik P 25**  
Serial number:

Configuration during flight tests


Paraglider		Accessories	
Maximum weight in flight (kg)	95	Range of speed system (cm)	15
Minimum weight in flight (kg)	75	Speed range using brakes (km/h)	15
Glider's weight (kg)	4.1	Range of trimmers (cm)	0
Number of risers	3	Total speed range with accessories (km/h)	31
Projected area (m2)	20.77		


Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Flugsau	Warning! Before use refer to user's manual	
Harness model	XX-Lite	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	41		
Distance between risers (cm)	44		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24  
A A B A A A A A A B A A A C A A A A A B B A 0

## ARTIK P 27

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Class: **C**  
In accordance with EN standards 926-2:2013 & 926-1:2006: **PG\_0930.2015**  
Date of issue (DMY): **17. 04. 2015**  
Manufacturer: **Niviuk Gliders / Air Games S.L.**  
Model: **Artik P 27**  
Serial number:

Configuration during flight tests

Paraglider		Accessories	
Maximum weight in flight (kg)	110	Range of speed system (cm)	14
Minimum weight in flight (kg)	90	Speed range using brakes (km/h)	15
Glider's weight (kg)	4.5	Range of trimmers (cm)	0
Number of risers	3	Total speed range with accessories (km/h)	31
Projected area (m2)	22.46		

Harness used for testing (max weight)		Inspections (whichever happens first)	
Harness type	ABS	every 24 months or every 100 flying hours	
Harness brand	Niviuk	Warning! Before use refer to user's manual	
Harness model	Hamak XL	Person or company having presented the glider for testing: <b>None</b>	
Harness to risers distance (cm)	44		
Distance between risers (cm)	48		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24  
B A A A A A A A A B B A A C A A A A A B A A 0

